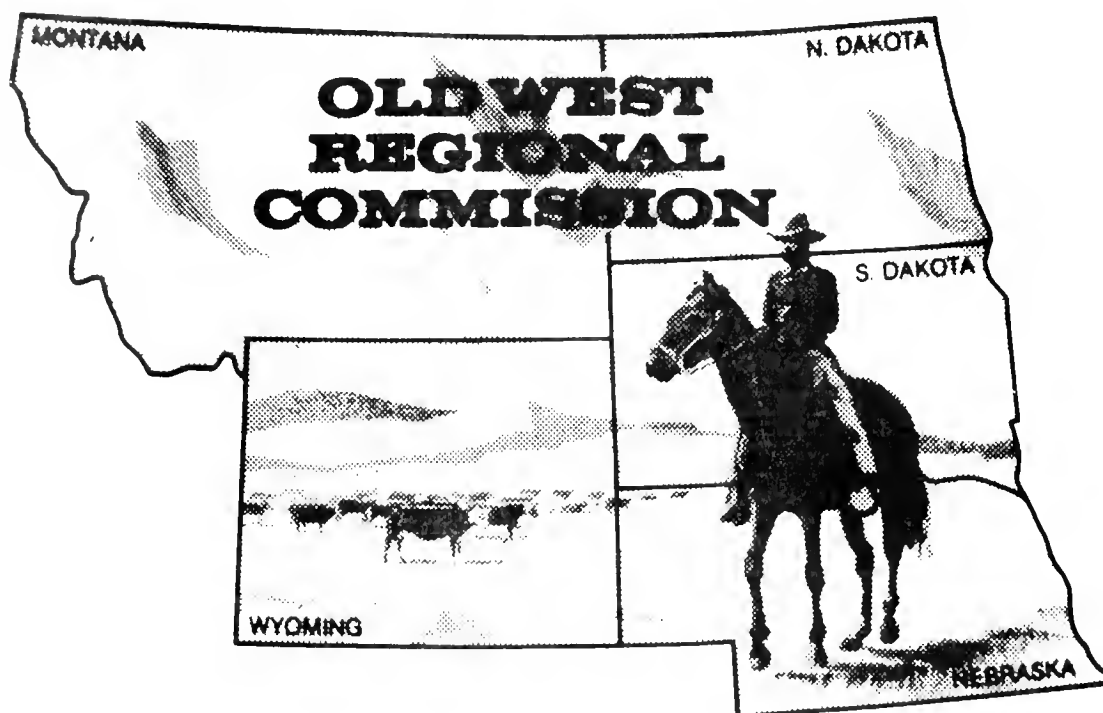


# Impact of Governmental Regulations On Agriculture



Prepared by  
Old West Regional Commission  
Task Force

Department of Agricultural Economics  
North Dakota Agricultural Experiment Station  
North Dakota State University  
Fargo, North Dakota

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### Acknowledgment

This report is the result of a study made at the direction of and funded by the Old West Regional Commission. The Task Force consisted of personnel assignments from the Departments of Agricultural Economics at the Land Grant Universities in the five-state Old West Region. The persons assigned to the Task Force were:

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## Impact of Governmental Policies and Regulations

Government policies and regulations are widely perceived as having significant implications for farmers, ranchers, and rural communities. A wide range of government activities at local, state, and national levels limit, direct, or aid the pursuit of agricultural interests in the Old West Region (OWR). The scope of governmental activities is far too large and their implications for regional agriculture is far too complex to be dealt with adequately within a single comprehensive research project. There are, however, specific policies and specific regulations which are researchable and which clearly merit research attention. Accordingly, the objective of this Task Force was to identify some of the governmental policies and activities that impact on production agriculture.

Members of the Task Force recognized that some governmental activities or regulations have differential impacts within the Old West Region. However, the topics that this Task Force adopted as suggestions for future research were based on the following criteria:

1. Is the topic or question important to production agriculture?
2. What is the magnitude of the impact (number of people involved--geographical area impact)?
3. Is it researchable?
4. What is the regional significance?

The Task Force concluded that the following areas of governmental activities are researchable and that the research results could be useful to agriculture in the Old West Region:

1. Environmental Protection Policies
- \* 2. Water Use Policy
3. Foreign Trade Policies
- \* 4. Transportation Regulations
5. Taxation
6. Public Land Policies
- \* 7. Price and Income Policy

### Other Research Areas

Among the numerous possible research areas identified by the Task Force, three that were thought to warrant further study were later removed from the list of high priority research areas. These areas are Rural Community Services, Indian Rights, and Economic Development.

Research on rural community services was left off the final priority list because the Task Force agrees that government actions in this area, while undoubtedly affecting rural people, have only minor and indirect impacts on production agriculture, i.e., the research area ranked very low when judged by the most important criterion for ranking research areas.

Indian rights were removed from the high priority list because it appears that legal uncertainties must be cleared up before useful economic research could be done.

Economic development was removed because the problems of identifying government programs to stimulate economic (usually industrial) growth probably make evaluation of impacts on agriculture impossible with reasonable time and money cost at this time.



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Federal Regulatory Programs: Environmental Protection  
Agency (EPA), Occupational Safety and Health  
Administration (OSHA), and The Food and  
Drug Administration (FDA)

There are several regulatory agencies and numerous programs within each agency which impact on agriculture. However, initial screening revealed that the regulatory agencies which have the most impact on agriculture are EPA, OSHA, and FDA. Each of these agencies was considered at length, but upon investigation it was found that OSHA regulations probably do not impact significantly on production agriculture in the Old West States. Most of the OSHA regulations which appear to have any significant cost or inconvenience impacts apply to the agribusiness sector and not to production agriculture (a notable exception are those which apply to migrant labor camps, but very little migrant labor is used in the Old West States). Researchable topics associated with EPA and FDA are described below.

Environmental Protection Agency

Problem Definition and Justification

The principal EPA regulations affecting production agriculture, excepting water quality which is treated in another context, are those associated with pesticides. (If one wished to expand the research scope to include food processing and other agribusiness firms, there would be numerous nonpesticide related EPA regulations which might be more important; for example, waste disposal for slaughtering plants and dust control in commercial elevators.) There are basically two types of pesticide regulations which impact substantially on agriculture: (1) restrictions with respect to application techniques, including training requirements, and application levels; and (2) withdrawal of pesticides from the market. The principal issue associated with these actions is whether the environmental improvements and health effects justify the economic costs. It has been alleged by industry people, scientists, and others that in many cases the environmental benefits do not justify the costs.

At the present time, a great deal of research has been and is being conducted regarding the environmental consequences of pesticides, but very little is being done to assess the benefits of pesticides. This is

apparently due in part to the existence of laws which require research on the environmental consequences of pesticides, but not on the benefits of pesticides. This imbalance, plus the economic significance of agriculture, indicates that research on the economic importance of pesticides in agriculture could contribute substantially to improved environmental decision making.

### Objectives

(1) Evaluate the impact on farm income of restricting the use of selected pesticides and/or of withdrawing them from the market.

(2) Evaluate the nonfarm income effects of selected pesticide restrictions and/or withdrawals.

(3) Compare the results of Objectives 1 and 2 with what is known about environmental consequences and develop alternative regulations where appropriate.

### Research Approach

Measuring the farm income effects (Objective 1) would involve assessing the impact on production costs and yields of selected EPA regulations. This would not be too difficult providing the physical relationships, such as the effect of a given herbicide on yields, are known. However, preliminary inquiry indicates that the technical data are not available in many cases and, therefore, it would be possible to research this question only for a small group of carefully selected regulatory actions.

Analyzing the nonfarm income effects (Objective 2) would involve both the multiplier effects of farm income changes and the effects on the chemical supply industry within the Old West Region. The appropriate approach in the case of multiplier effects would probably be to use existing input/output models. Measuring the income effects on the chemical industry would involve collection of sales, balance sheet, and related data from the affected firms.

Policy evaluation and development of alternative regulations (Objective 3) would involve the results of Objectives 1 and 2, plus a review of the literature on what is known about environmental consequences. Interviews with informed people both within and outside the industry might also be appropriate.

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## Water Policy

Four water policy areas were originally considered by the task force as potential research topics. They were: (1) eligibility requirements for receiving water from federally funded water projects (160-acre limitation), (2) section 208, water quality regulations, (3) groundwater regulations, and (4) federal-state cost-sharing policies. The first two of these alternatives appear to merit serious consideration as significant, researchable topics and they are accordingly presented as mini-proposals in the pages which follow. Topics 3 and 4 have been eliminated from consideration for several reasons. In the case of groundwater regulations (topic 3), preliminary investigations revealed that substantial research is already underway. Research on cost-share policies (topic 4) appeared to be premature because the Carter Administration initiatives in this area are currently too undefined to be effectively analyzed.

Eligibility Requirements for Receiving Water  
From Federally Funded Projects: The 160-Acre  
Limitation and the 50-Mile Residency Requirement

Problem Definition and Justification

There are perhaps several eligibility requirements which merit investigation, but the ones of greatest concern are clearly the farm size requirement for irrigation projects (160-acre limitation) and the farm residency requirement (to be eligible for receiving water a landowner must live within 50 miles of the land in question). Both of these provisions have received considerable press in recent months as the U.S. Department of Interior proceeds to enforce these regulations, after having ignored them for many years.

The basic issue associated with the 160-acre limitation is whether 160 acres is an efficient family farm unit. The question is complicated, however, by the fact that each immediate family member may own 160 acres. Thus, only state planning considerations and family size prevent establishment of relatively large "family" farms.

The residency requirement exists because of a desire to keep the benefits of irrigation projects from going to absentee landlords. If one takes this objective as given, the relevant question becomes how to best implement it. For example, should it be a mileage (place of residence) restriction or should absentee ownership be permitted in certain cases, such as long-term family ownership, but not in others, such as when some capitalist has recently purchased it.

It is unlikely that enforcing these eligibility requirements will have much of an impact on the Old West States, because preliminary indications are that relatively few landowners would be affected. However, the issue is an emotional one that is generating substantial political concern. Therefore, it might be desirable to research the topic in order to definitively establish the significance for the Old West Region of enforcing current regulations and/or establishing alternative policies.

Objectives

(1) Identify the socioeconomic characteristics of the landowners who receive water from federal irrigation projects in the Old West States.

(2) Measure economies of scale for the types of agricultural operations found on farms receiving water from federal irrigation projects in the Old West States.



(3) Analyze the farm income and wealth (land value) implications for the Old West Region of enforcing the current 160-acre limitation and 50-mile residency requirements.

(4) Propose and evaluate alternative regulations for achieving the same objectives, including consideration of criteria for developing flexible policies.

#### Research Approach

All objectives are clearly researchable using widely accepted methodologies. Identifying the socioeconomic characteristics of affected landowners (Objective 1) would involve use of secondary data from the Bureau of Reclamation and the Corps of Engineers, plus a mail survey of landowners and operators.

Economies of scale could probably be measured (Objective 2) by applying basic production theory and statistical techniques to secondary farm management data available from experiment stations and state and federal agencies.

Analyzing the farm income effects (Objective 3) would involve interpretations of the economies of scale data and the survey results. Land value data will need to be gathered in the survey of affected landowners in order to assess wealth impacts.

The evaluation of alternative policies component (Objective 4) would involve the same approach as Objective 3, but for different acreage limitations and residency requirements and/or for entirely different solutions to the problem. The alternatives could be drawn in part from those being suggested by Congress and the Carter Administration.

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## Section 208 of the 1972 Water Quality Act

### Problem Definition and Justification

Section 208 of PL 92-500 calls for development and implementation of statewide water quality management plans, with emphasis on nonpoint water pollution. Adherence to the letter of the law would require that a plan be developed to make all lakes and streams fishable and swimable by 1983, where attainable. Furthermore, the major nonpoint pollutants are contained in run-off from agricultural lands and thus the potential implications for agriculture are substantial. It is possible, if not likely, that farmers may be required to modify tillage practices, change cropping patterns, reduce use of pesticides and/or invest in structural measures to reduce run-off. The basic problem with this program is that very little is known about either the economic implications of implementing such regulations, or about the water quality effects that would result. For example, there is very little information on the economics of reduced tillage or about the relationship between erosion and the sediment load in streams.

Unless changes in current law are forthcoming, each of the respective states will have to find ways to make lakes and streams fishable and swimable by 1983. If improved economic and technical information is not available before water quality planning decisions are made, it is likely that some regulations which are both inefficient and economically disastrous for agriculture will be approved.

### Objectives

(1) Analyze the farm income effects of reduced tillage, reduced use of pesticides, greater use of cover crops, and other farm management practices which might be required to meet run-off restrictions associated with 208 water quality planning.

(2) Evaluate the water quality benefits associated with programs to reduce run-off from agricultural lands.

(3) Assess alternative water quality standards in a cost-benefit context.

## Research Approach

Some of the farm income effects (Objective 1) are clearly researchable, while others may be impossible to pursue under a two-year time frame. In cases where the technical response data are available, e.g., the effect of reduced tillage on yields, a rather standard partial budgeting or linear programming approach would probably work well. However, technical response data on items, such as reduced use of pesticides, are scarce and in such cases a definitive economic assessment may not be possible. Another problem which is relevant to all elements of Objective 1 is that the results will be very dependent upon soils and climatic factors, making it difficult to come up with results that are generalizable for the region.

The evaluation of water quality benefits (Objective 2) would be a very difficult task involving problems associated with valuing amenities, as well as numerous technical factors, such as the effect of selected pollutants on human health and fish populations. These problems make definitive benefit estimates impossible, but it may nevertheless be useful to go as far as time and resources permit. A viable approach might be to assess the benefits from reducing selected pollutants in certain streams within the region, based entirely upon the literature, secondary data sources, and informed judgment.

Assessing water quality standards (Objective 3) would involve use of the results from Objectives 1 and 2, plus any additional relevant cost of control components, in order to assess the reasonableness of regulations to provide for fishable and swimable waters by 1983. This objective might also involve a comprehensive inventory of surface water resources in the Old West Region for the purpose of identifying bodies of water where stringent water quality standards are and are not appropriate.

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## Effects of International Market Promotion Activities for Agricultural Commodities

### Problem Definition and Justification

International market promotion activities designed to stimulate exports of particular agricultural commodities have been performed historically by commodity groups or associations and by the federal government. Recently state governments have also become involved. Among several activities supported have been trade fairs, advertising, lobbying foreign governmental import agencies; and by the federal government, concessionary sales arrangements, low interest financing for exporters (and for foreign importers), shipping subsidies, foreign aid, and export subsidies.

Participants in these programs, from both public and private sectors, generally agree that promotional efforts are effective in stimulating exports. They also maintain that increased exports, of their particular products: improve farmers net incomes, help the overall U.S. trade balance, assure consumers of a continuing low cost supply of agricultural products, and are sufficient to justify the promotion costs.

Some observers who are not directly involved question whether any of these claims are correct. Among their arguments are that international trade is primarily controlled by supply and demand forces (which operate in a competitive market for agricultural commodities because of the homogeneous nature of the products from suppliers or potential suppliers) and by formal trade agreements or unilateral restrictions. Market promotion efforts have, at best, only slight and transitory effects on export volumes and on producers' incomes. Moreover, domestic consumers are hurt by the producer price increases that may occur, and in any case the benefits received do not justify the (public) costs.

Little research has been done to address the important questions raised by the different perceptions of the effects of promotional activities. And the need for research is increasing because of an increasing role seen for agricultural trade as part of a solution to the perennial "agricultural income problem," and because of pressures for increased market promotion activities by state governments.

### Objectives

A study having the following objective would be feasible and could give insights useful to decision makers considering market promotion.

To estimate the impacts of one public agricultural export promotional effort on the volume of exports of the particular commodity, the incomes of affected producers, and on domestic consumer prices; and to compare costs and benefits of the promotion activities.

#### Research Approach

Estimation of the foreign market impacts of promotional activities could be achieved using a case study method together with descriptive comparisons of the study market(s) with similar markets not a target of the promotional effort. The short-run impacts on domestic producers and consumers might be estimated by applying demand elasticity estimates for the particular commodities to the changes in export demand; to determine price and income changes. Estimates of longer run effects would be more difficult to obtain and would require consideration of supply response and market substitution caused by the changes in export demand.



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## Trade Policy Effects on Agriculture in Old West Regional States

### Problem Definition and Justification

International trade policies of the United States are of special importance to the Old West Regional States because of the large role played by agricultural export and import substitution activities in the Regional economy. In recent years agricultural exports from the region accounted for about one-fourth of the total value of agricultural production in the Old West States. For some commodities, notably wheat, the reliance on export markets is much greater.

Although federal trade decision makers undoubtedly examine the impacts of possible decisions on agricultural exports and imports and on the general health of the agricultural economy, there is no evidence that attention is given to the differential impacts of policy decisions on particular regions. Thus, while a given set of trade policies may be clearly in the national interest in terms of balance of payments or volume of trade considerations, the incidence of the policies' effects may be such that special consideration should be given to effects on particular regions. Those who may be called upon to sacrifice in the marketplace because of national policy should have an important role in policy formation, and be assured compensation for the sacrifice made.

These two objectives imply that good information, which is not now available, about the specific impacts of trade policies and trading conditions on affected regions to be obtained. On the basis of knowledge of regional effects manifested in the past, improved prediction of the probable effects of alternative policy decisions made in response to changing national and international economic conditions might be possible. In turn, improved predictions would allow public officials and interested private groups or persons within the region(s) effected to make constructive inputs to the process of national policy formation.

### Objectives

The types of problems about which more information are needed can be phrased as research objectives:

1. To determine the effects on grain exports of regulations about: government export financing or financial guarantees, grading for export, and voluntary export limitation agreements.

2. To determine the effects on domestic prices of the various livestock, meat, dairy, and sugar import restriction policies over the past few years.
3. To determine what part of these effects impact on the Old West Regional States and how important are they to the regional economy; to particular producers within the region.
4. To project the impacts of feasible trade policy alternatives for particular commodities or groups of commodities.

#### Research Approach

It is likely that most of the answers necessary to achieve the first two objectives are known as a result of previous research that evaluated the general impacts of policy changes. However, in general, the regional effects of the various policies have not been assessed. Nor have the likely regional effects of prospective policy changes been projected.

Answering the questions with respect to regional effects would involve: 1) a thorough literature search to compile estimates of the total effects on U.S. trade, in particular agricultural commodities, of policies of the various types (policy effects that have not been estimated in previous studies might warrant separate studies, with impact coefficients being estimated using multifactor regression analysis); 2) estimation of the proportion(s) of the total effects that would impact in the Old West States; and 3) translation of estimated regional trade impacts into price and/or income and resource employment changes.

Projections of the impacts of prospective trade policy changes could be accomplished through use of simulation models using as parameters the impact estimates (coefficients) developed in previous phases of the study(ies).

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## Price and Income Policy

### Problem Definition and Justification

Many aspects of farm income flows are influenced by government policy measures. Specific areas of influence are in the areas of crop insurance and disaster payments, direct farm payments, and regulatory measures relating to farm and agribusiness firm operations. Because of the far-reaching influence of these programs, virtually all sectors of agriculture are influenced by federal and state program actions. Because farmers face risk and uncertainty in many forms, it is necessary to evaluate the impact of government programs on the income variability and the income levels persisting throughout the agricultural sector. There is a specific need to evaluate the income stabilizing impacts of target prices and disaster payment programs throughout the plains area because of the relatively high yield risks that exist throughout this area.

Crop insurance also is an important consideration to plains area agriculture, thus there is a need to identify the relationship between crop insurance and disaster payment programs. Further analysis is also needed of the impacts of current target price concepts on income variability among plains farmers.

The changes in farm programs that are evident in the 1977 Farm Act will generate a significant new governmental influence on farm operator decisions in the Old West States. A variety of set-aside requirements and the need to establish permanent cover on set-aside acres are areas of change that Great Plains farmers have not faced before. Additionally, cross-compliance requirements of program provisions make the economic significance of operating decisions extremely important. All of these changes have added to the complexity of the decision process for Old West area farmers and thus have created a need for analysis of program impact on area farmers.

### Research Approach

Because the 1978 Farm Act has several new provisions, it would be useful to compare its impact on plains farmers by collecting data on income transfers and land use patterns in the 1978-1979 crop year. Comparative analysis of these data with previous program periods will reveal changes in the incidence of program impacts on plains farmers.

Program disbursements under the disaster payment should be analyzed and related to farm income patterns to measure the effectiveness of these programs. These payment levels should also be related to payments made under Federal Crop Insurance programs and their interrelationships analyzed.

Measures of agricultural income linkages to state and local tax revenues and levels of local business activity should be developed to provide a measure of the significance of income stability in agriculture.

A study of program participation in 1978-1979 by Old West States farmers should be conducted to identify the adaptability of present program provisions to area farmers needs. If suboptimal program use exists analysis should be made of why farmers did not participate and recommendations made for program changes to increase their use by plains area farmers.

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### Transportation

Transportation is highly important to states in the Old West Region. The relative isolation of the region from major centers of population and its specialization in agricultural products which are relatively heavy and bulky make these states heavily dependent on transport services. It is of critical importance to agricultural producers in particular and to all residents of the area that these transport services be reliable and efficient. Inasmuch as the operations of most commercial transport companies are subject to public utility regulation, it is particularly appropriate that public interests be adequately represented in decisions relating to future directions of transportation.



## Regulation of Motor Carriers

### Problem Definition and Justification

The cost and service implications of relaxing state and federal economic regulatory restrictions over motor carrier transportation are in need of evaluation. Public utility regulation was imposed upon the trucking industry at the behest of the industry itself in 1935, a time when economic activity in general and trucking activity in particular were at historic low levels.

It has been contended that regulatory restrictions on entry into the trucking business yields monopoly profits for existing firms and reduces their incentive to perform in the most efficient manner. It has been contended that route, point, and commodity restrictions create inefficient operating conditions. Since most investigators have determined the industry is one of relatively constant returns to scale, since most markets are large enough to support large numbers of firms and since investment is highly mobile, many observers have concluded that a high degree of competition would prevail in the absence of regulation. The carriers themselves maintain that competition would be disorderly and that geographically isolated small volume shippers would suffer a deterioration in service should regulatory restrictions be relaxed or eliminated. These opposing views are in need of objective evaluation.

Although shipment of raw agricultural products is exempt from federal economic regulation, backhauls of other goods are regulated and apparently badly hampered by regulatory restrictions in some instances. Agricultural inputs and other products needed by residents of rural communities are subject to regulation in any case.

Trucking is big business in the United States. Industry operating revenues in 1975 were \$21 billion. Estimates of regulatory costs range as high as \$8.2 billion per year. (Transportation is especially critical to residents of states in the Old West Region, states which are located long distances from major producing and consuming areas of the nation.)

### Research Approach

Part of the research might logically involve development of appropriate methodology. A case study aimed at measuring and comparing traffic patterns and associated costs under the current regulated system with simulated

traffic patterns and costs under a deregulated system appears feasible. Linear programming or other optimizing procedures might be used to make the task manageable.

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## Variable Rail Rates

### Problem Definition and Justification

The implications for shippers and carriers of temporally variable rail rates should be investigated. Unlike the relatively fixed rail rate structure, the demand for rail service is highly seasonal. Variability in demand in turn creates need for maintaining a large equipment reserve to service peak loads. Chronic difficulties are experienced in meeting these loads, leading to car shortages at grain harvest. In periods of slack demand, by contrast, costly equipment stands idle.

Prices for car services (per diem and demurrage) and rules for rationing car supplies are fixed and administered jointly by the Association of American Railroads and by the Interstate Commerce Commission. These rates which owning railroads charge using railroads and shippers, respectively, for use of their cars tend not to vary with demand for car service. Since freight tariffs are also insensitive to demand variability, and authoritarian means for allocating cars became essential. There is reason to suppose that neither the optimum allocation of cars in the short run nor the optimum size of car fleet can be achieved under the present system. Flexible rates would force shippers to pay their fair share of the costs associated with peak loads, would tend to even flows of traffic, and would permit use of a smaller equipment fleet.

Potential losses suffered under the present inflexible rate and car-service charge system stem from misallocated car resources in both short- and long-run, queuing problems at grain elevators and other loading points during peak periods and administrative costs associated with the present allocative system. Losses in 1972, occasioned by inefficient per diem and car-service rules and orders alone have been estimated at \$680 million.

Opponents of flexible rates contend that flexibility would lead to rate discrimination (seasonal rate differences which are not cost justified). They express fear that the overall level of rates would rise as a result of higher peak season rates. The issue of the optimal and expected incidence of rate variation and its implications for shippers, as well as carriers, need to be reached.

### Research Approach

The proposed study will require an analysis of the carrier costs associated with alternative levels of load variability, as well as of

shipper costs incurred in deferring shipments until normally slack shipping periods. ICC Cost Scale data can be used in developing the former estimates, while grain storage and conditioning costs will be needed for the latter.

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## Waterway Policies

### Problem Definition and Justification

Should barge firms pay for their use of publicly-supported inland waterways? If so, at what rate? Barge traffic on inland waterways in the United States has not been subject to user charges. Waterway construction, operating, and maintenance costs have been borne entirely by taxpayers. Many observers contend that the marginal costs of future waterway maintenance and improvements attributable to barge traffic should be paid by users. Railroad representatives have long maintained that provision of freeway facilities gives the nation's barge lines an unfair advantage over competing modes. Economists have often voiced criticism of resource misallocation associated with waterway subsidies. The waterway industry, on the other hand, contends that imposition of user charges would "kill" the traffic, creating losses for both shippers and water carriers.

Inland waterways account for about 13 percent of intercity freight tonnage movements in the United States; 243 billion ton miles were carried on the waterways in 1975. An estimated \$8.3 billion in public funds has been spent on inland waterways since their inception. Annual outlays presently run at the rate of \$420 million and presumably would increase should Locks and Dam 26 on the Mississippi River near Alton, Illinois, be rebuilt.

At the same time, average costs per ton mile to shippers of moving freight by water was only one-fourth that of shipment by rail in 1973. User charges might raise these costs significantly. Agriculture's share of waterway maintenance, operation, and rehabilitation costs has been estimated by one source at \$39 million per year.

### Research Approach

Research would involve measurement of marginal costs of providing waterway service to users and estimation of how user charges would affect barge rates. Responsiveness of traffic to changes in freight rates might be determined by measuring cross-elasticity of rail demand with respect to changes in barge rates. A linear programming model might be used to determine the impact of rate changes on shipping patterns.



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## Public Land Policies and Agriculture

### Problem Definition and Justification

Public lands, consisting of both federal and federally-granted state lands, contribute significantly to the grazing resource utilized by the livestock sector within the five states of the Old West Regional Commission. Federal lands (primarily under Forest Service and BLM administration) constitute the following percentages of total land area within the OWRC states: Wyoming (48%), Montana (30%), South Dakota (6.7%), North Dakota (5.2%), and Nebraska (1.4%). State administered lands range from a low of 6.3 percent in Montana to a high of 7 percent in Nebraska and North Dakota (3). Total publicly-owned lands range from 55 percent of Wyoming to 8.4 percent of Nebraska. Government land policies may be expected to have significant but highly differential effects across the Old West Region.

The current use of state and federally administered lands reflects, in aggregate terms, the "multiple use" policy advocated by land use administrators (and mandated for federal lands by the Multiple Use-Sustained Yield Act of 1960). Public lands provide a large number of AUM's of grazing to the agricultural sector of OWRC states and also provide for timber production, wildlife, watershed, aesthetics, and recreation, in addition to minerals, such as oil and gas, coal and uranium (35). Certain uses may be viewed as complimentary. Conflicts have arisen among some other uses and require trade-off decisions on the part of decision makers charged with administration of such lands.

The AUM's of grazing provided by state and federal lands in the OWRC states are a significant factor in the production of beef and lamb. In Montana and Wyoming permits held by individual firms assume critical importance on a seasonal basis, allowing herd size to approach efficient size levels. However, the benefits accruing to the agricultural sector and local economies from such use are under critical review. User charges (fees) and conflicts with other uses are at the base of those reviews. Increasing attention to recreation, wildlife, aesthetics, and watershed habitat, as exemplified by the "key values concept," will impinge upon agricultural use of federal lands and upon other natural resource uses, such as timber and mineral production.

Access to state and federal lands for various multiple uses is also an issue and is affected by conflicts among uses and also by agency actions, such as RARE II (Roadless Area Review and Evaluation).

The concept of user charges for state and federal lands is a complex and emotional question currently under federal agency review (90). The OMB has determined that user charges for federal lands shall be based on "fair market value" (FMV). The administering agencies, the U.S. Bureau of Land Management and the U.S. Forest Service, have been proceeding to implement fees at FMV since 1969. A major problem arises in definition of FMV, a concept not as clear as may be supposed. The users' definition differs from that proposed by administrators and Congress.

The determination of FMV is, by agency agreement, to be based on values that would prevail in a competitive market (90). However, the locational patterns of public lands and leases introduces, in many cases, the elements of bilateral monopoly, with only one (or few) purchaser(s) and one supplier of the resource. The equilibrium price (value) and quantity, in theory, is then indeterminate. The issue of "fair" user charges--whether for grazing, timber, minerals, recreation, or wildlife and whether on state or federal lands--may be difficult to reconcile on economic grounds. The calculus of the decision process must recognize not only the economic issues of efficiency and equity, but also the access to political power of the individual parties.

A less controversial issue, but one of perhaps greater long-run consequence to agricultural, timber, or mineral uses involves decisions controlling or inhibiting access to the public lands. Increasing pressure from Congress and the judicial branch on land administrators to update and implement mandated land use plans may change the use patterns of large units of public lands, e.g., RARE II. That program, as well as others (Renewable Resources Planning Act of 1974, National Wilderness Preservation System) along with the "key value concept," may ultimately reduce the area devoted to agricultural, timber, or mineral production (35). Environmental impact statement (EIS) requirements concerning specific public land uses may also affect the disposition of those lands in terms of final use.

## Objectives

The public-private land interface common throughout the western states provides a setting for a number of possible impacts associated with decisions concerning the use of the public lands. These impacts suggest areas for possible research.

In terms of user fees and access issues, policy changes advocated by public land administrators may have significant distributional effects, with negative effects likely to fall most heavily on the user industries. Increases in user fees and/or reductions in the resources allocated may induce changes in structure of the user industries. The long-term economic viability of firms which are heavily dependent on these resources, such as public range or timber, may also be affected. Employee's and input suppliers could also be adversely affected. These government regulations in OHRC states will probably not have great impact on consumers in the national market. The regulations affect a relatively small proportion of the nation's livestock or lumber production. Effects on mineral production could be greater in the future.

Public land policies will also affect coal and mineral developments, and in turn will affect agriculture on a very site-specific basis. The actual acreage affected would be relatively insignificant even if all federal leases are exercised. However, the peripheral issues of changing rural community structures, the subsequent demand for rural services, and the changes in tax structure would impact upon local agricultural production and communities.

It is typically assumed that conflicts occur among various multiple uses, such as grazing and wildlife or grazing and recreation. The exact nature and magnitude of such conflicts are not clear. Research is needed on supply of and demand for recreational resources and actual recreational use of public lands. Spatial and temporal considerations are important. The effect of and values or costs of marginal changes in supply and demand for recreation are important in determining the extent of economic conflict between recreation, wildlife, and other multiple uses. Furthermore, some evidence suggests that for many wildlife species, there is minimal competition with livestock for forage.

Based on the consensus of the Task Force participants, the issue of user charges, specifically grazing fees, and access were selected as being most relevant of this general set of topics. Specific objectives of a research proposal addressing user charges and access should include:

1. To describe the market for private leases and private leasing arrangements, determine private lease rates, and their relationship to "fair market value" for fee setting purposes.

2. To differentiate between costs of using federal, state, and privately owned leased land including specifically the effects of predator losses, and of costs associated with agency implementation of intensified management plans.
3. To determine costs and returns for public land users developing and using alternative sources of forage through range improvements, or range management techniques, such as grazing systems.
4. To determine costs and returns of public land users using alternative sources of forage including purchased feeds or improvements to cropland or meadows to increase harvested feed production.
5. To determine the net effect of reductions in AUM's of public grazing on the welfare of livestock producers.

Depending on the structure and depth of such a research project, meeting any one or more of the above objectives could entail a major research effort. Thus, it is perhaps unreasonable to expect one project to adequately cover all objectives. User charges and access for other resource use have not been mentioned. This should be recognized by OWRC or any agency involved in funding of research on user charges. The achievement of any objective listed above would, however, make a significant contribution to the resolution of this issue. Note that Objectives 1, 3, and 4 could be quite relevant for state or private land use, independent of public land use questions.

#### Procedure

It is envisioned that a substantial research effort would be required to adequately cover the objectives discussed in the preceding section. Given the nature and magnitude of these objectives, it is not possible to define a specific research procedure. Rather, an eclectic approach, using various methodologies would perhaps be needed. Some combination of descriptive and analytic approaches would be needed for most objectives.

A rather extensive set of survey data may be needed covering the "costs" discussed under specific objectives. In addition to providing descriptive information, such data may also be used to synthesize costs relationships or be used in representative firm analyses. Simulation analysis of a representative firm may be used to investigate the effects of alternative cost and policy assumptions on firm viability and structure. Aggregate measures of producer welfare associated with changes in access suggest some sectoral level analyses, such as an L.P. framework.

While admittedly brief, this discussion of an "appropriate" procedure may serve to point out general approaches to the problems implicit in the objectives. The correct procedure will be a function of the area of emphasis of any research proposal. Finally, the OWRC will ultimately define the scope of any grazing fee research through funding considerations.

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## Taxes

### Problem Definition and Justification

The agricultural sector historically has paid a disproportionate share of its portion of national income to property taxes. During the 1932-75 period, farm property taxes accounted for 8.0 percent of all property taxes, but the national income originating in farming was 4.0 percent of total national income. Viewed another way, during this span property taxes took 7.9 percent of national income originating in farming and only 4.0 percent of the national income originating in the nonfarm sector. Farm incomes have typically been lower than those in the nonfarm sector, but the evidence is inconclusive whether much of the higher property tax bill for farmers can be blamed on the regressivity of the tax. The relative capital intensity of the agricultural sector may be the primary cause of its higher property tax payments.

How the agricultural sector fares in a comparative sense with the nonagricultural sector depends upon the relative distribution of capital ownership between the sectors by income level. Evidence suggests that there is a much higher ratio of wealth to income in the agricultural sector. Moreover, internal agricultural-sector wealth is skewed much more toward the lower end of the income scale than is true for the economy as a whole. These factors tend to negate a substantial part of the potential progressivity of the property tax within the agricultural sector. It follows that the agricultural sector could still end up paying more than its share of the tax, due to comparatively more wealth relative to income at the lower income levels. More evidence on the income-wealth relationships is needed, but it appears that the agricultural sector faces a horizontal inequity concerning the property tax.

The property tax also may be viewed as a wealth tax and this leads to other conclusions. When horizontal equity between sectors is measured by the ratio of taxes to wealth, it becomes evident in terms of this measure that the agricultural sector traditionally has paid proportionately less property tax than has the nonagricultural sector. Available data show that this conclusion holds for the entire post-1935 time period. In 1935, the ratio of property taxes to wealth was .010 (1.0 percent) for the agricultural sector and .015 (1.5 percent) for the nonagricultural sector. In 1974, the ratios were .005 and .014, respectively. Throughout the 30-year span, the range of difference in favor of the agricultural sector has varied from .002 to .007. (The range was not significantly altered



when the nonprofit sector was subtracted from the nonagricultural sector.) The above conclusions must be tempered somewhat because the evidence suggests that property taxes are largely capitalized into farm property values, which depresses the farm values and distorts comparisons with other sectors to some degree.

Nevertheless, interesting as the tax-wealth data are, they do not represent a final answer to the question of relative tax burden between sectors. Taxes typically are paid from current income so the concern about the relative tax/income ratios tends to dominate that for the relative tax/wealth ratios--and the concern for the agricultural sector's comparative "burden" continues.

Various attempts have been taken to help the agricultural sector with its property tax burden. These include laws: (1) giving preferential or use-value assessment for farmland, (2) granting the exemption of major classes of farm personal property from taxation, and (3) establishing some homestead and circuit breaker tax relief plans. There are pros and cons to this growing movement to provide relief by making such changes and thus eroding the tax base. Farm use value assessment is no exception. The homestead and circuit breaker approach does not favor farmers in many instances. However, the exemption of personal property tends to give farmers a significant boost because of their typically substantial investment in livestock and machinery.

Viewed abstractly it would seem that further reform in local government financing is required to make the property tax more equitable for agriculture. But it must be kept in mind that any movement to nonproperty taxes by higher levels of government, and concomitant increased intergovernmental revenues flowing down to lower governmental levels, could cause local citizens to lose some degree of control over their local institutions. Despite criticism on a number of grounds, the property tax has afforded a considerable degree of local flexibility and control in rural areas.

Property tax incidence should not be viewed alone, but rather as part of a national tax system--federal, state, and local. For example, local property taxes are a deductible item on federal income taxes. Though the property tax may appear to be burdensome, it may lower the federal income tax bill of the high-income taxpayer significantly.

The basic historical factors that have been influencing the farm property tax do not appear likely to change significantly in the near future. Thus, the long-run horizontal inequity of the property tax borne

by the agricultural sector, when measured in terms of tax/income ratios, is likely to continue.

It may not be feasible to evaluate a tax system in the OWR context because of state differences in both constitutional and statutory laws. However, a study of the impact of federal income tax laws and federal estate tax laws on farmers and ranchers would be a useful and researchable effort on a regional basis in the Old West States.

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